



## ATES ENVIRONMENTAL PROTECTION AGENCY

November 4, 2015

Mr. Anthony R. Brown  
Environmental Manager  
Atlantic Richfield Company  
4 Centerpointe Drive, LPR 4-435  
La Palma, CA 90623-1066

**Re: EPA comments on Atlantic Richfield's Response to US EPA Comments on the Proposed Remedial Investigation/Feasibility Study Schedule, Leviathan Mine Site, Alpine County, California, Dated March 13, 2015**

Dear Mr. Brown,

The US Environmental Protection Agency (EPA) has reviewed Atlantic Richfield Company's (ARC) March 13, 2015 Response to US EPA Comments on the Proposed Remedial Investigation/Feasibility Study Schedule, Leviathan Mine Site, Alpine County, California, along with an annotated table of contents for the RI/FS Report (Volume 1: Remedial Investigation). This response from ARC was prepared based on EPA's January 15, 2015 comments.

Background: EPA requested that ARC provide an updated RI/FS schedule and an annotated Table of contents. On December 12, 2014 ARC provided EPA with a response. On January 15, 2015 EPA provided comments on ARC's proposed schedule with respect to the November 2009 Programmatic Work Plan (PWP) and the volume of information already gathered under twenty-one various ARC RI/FS work plans since 2009. EPA's proposed timeline was based on consolidation of field efforts in calendar years 2015 and 2016; parallel completion of the risk assessments, RI, and FS; and preparation of one integrated RI/FS report (including the risk assessments). Thus reducing ARC's proposed RI/FS delivery date from about 2020 to December 31, 2017. ARC provided a response dated March 13, 2015 for EPA review.

EPA provided additional clarification regarding the expected schedule in a June 17, 2015 email. EPA's concern remains that despite six years of substantial information to implement the 2008 Administrative Order, ARC proposed an additional six years of investigations and studies to complete the RI/FS. While the development of RI/FS work plans has taken longer than anticipated, EPA believes that, going forward, the RI/FS can proceed with the sequence of (and intervals between) submittals as approved in 2009.

On August 21, 2015 EPA provided an email stating that it expects ARC to comply with the timeline that EPA laid out in its January 15, 2015 letter. "EPA still holds that this schedule is reasonable and is of the opinion that ARC shall schedule its field crews and resources as necessary to ensure field work is

conducted and completed in such a way, that the outlined schedule will be met and adhered to. If any work plans are contingent upon EPA approval to meet this deadline, the responsibility is on ARC to request necessary approvals to complete the work as outlined. If ARC would like additional time or an extension, please provide that in writing.”

ARC provided a response dated August 24, 2015 further clarifying its position on the timing of the RI/FS schedule.

EPA provides the following comments:

- **G1 Schedule 1: Sampling in 2015:** EPA and ARC concur that significant progress has been achieved with 2015 work planning and the resolution of issues related to NHPA compliance. EPA appreciates the significant progress with the implementation of sampling activities during the 2015 field season.

EPA understood that several investigations now suggested for completion during 2016 would instead be completed during 2015. Those specific tasks include:

- On-Property Stream Sediment Investigations (Task IDs 183 and 184), Amendment Nos. 8 and 10 to the On-Property FRI Work Plan;
- On- and Off-Property Floodplain Soil Investigations (Task IDs 185 and 186), Amend No. 2 to the Off-Property FRI Work Plan; Amendment No's 8 and 10 to the On-Property FRI Work Plan;
- On- and Off-Property Fish Surveys and Sampling Field Effort (Task IDs 202, 207, and 208); and
- Reference Study Area Fish Survey and Sampling (Task ID 251).

Since Off-Property Floodplain Soil investigations, On- and Off-Property Fish Surveys and Sampling, and the Reference Study Area Fish Survey and Sampling were not completed in 2015, EPA expects that ARC will focus on completion of these tasks in a timely manner during 2016 so that the RI/FS report will be developed by 2017.

EPA requests that ARC address and respond to the Regional Water Quality Control Board concerns regarding the timing of snowmelt runoff sampling, and the year-round flow monitoring as identified in the attached letter.

- **G2: Technical Meetings to Focus on Data Usability:** EPA concurs with periodic (perhaps annual) submittal of data sets for the various work plans and the various media (i.e. for example but not limited to, mine waste data, groundwater data, surface water data etc.) Please refer to individual comments on those submittals. ARC and EPA should both agree that the data sets are complete, an appropriate quality assurance/quality control summary review is completed, and the data is usable. ARC should also ensure the data is visualized on figures, all data gaps are identified, and there is a proposed plan for addressing additional sample and data needs. As discussed, rather than technical memos, PowerPoint presentations, and/or meeting minutes; full reports should be provided and those later be included in the RI/FS as attachments or appendices.
- **G3: Risk Assessment Included in the Remedial Investigation.** EPA and ARC seem to be in agreement that the RI/FS submittal schedule in the 2009 schedule is generally still appropriate with respect to timing of report delivery with respect to field work. EPA again refers to our Jan

15, 2015 comments and believes that schedule is reasonable. The ongoing monthly groundwater monitoring activities (Task ID 21 and 36 on the 2009 Schedule) has been underway since 2011, and more than sufficient information has been completed for preparing a draft RI Report appendix concerning groundwater. As the media specific reports are completed and data usability is determined, the risk assessments can be completed in an iterative manner and in parallel to the other RI work, resulting in one complete submittal.

- **G4: Iterative Approach to the Risk Assessments.** ARC notes that they will have to work with the U.S. EPA to reach early consensus on appropriate screening levels for decision making during implementation of the RI/FS. Further, ARC supports the use of media-specific screening-level risk evaluations to expedite decision making prior to the completion of the Baseline Human Health and Ecological Risk Evaluations. As described in our response to Comment G2 above, EPA believes that technical summary reports can be compiled and later appended to the RI/FS. The screening-level risk evaluations will be integrated into this same type of collaborative data review process along with comparisons to applicable media-specific reference concentrations, as soon as they are available. EPA continues to request that the risk assessments be conducted in an iterative manner with screening assessments followed by quantitative assessment of risks so that the risk assessment can be completed to support timely development of remedial action objectives and still ensure a completion date of January 2018. ARC notes that the conceptual site models previously developed for human health and ecological risk assessment and the current and reasonably anticipated future land use for the different portions of the site will need to be properly accounted for in this process. EPA saw a presentation of the latest proposed Conceptual Site Model at our September 22, 2015 meeting. Please provide EPA with a formal submittal of the conceptual site model for full review and consideration.
- **G5: Integration of RI and FS:** ARC states that they will submit FS comments under separate cover. AR also notes that they *assume that the U.S. EPA agrees with the FS approach as outlined in ARC's August 27, 2014 letter*. Please refer to the comments that EPA provided on that document dated January 1, 2015. EPA requests that ARC develop and submit a schedule for the tasks outlined in the FS approach. Please incorporate the FS schedule into one comprehensive revised schedule for concurrent completion of both an RI and FS report for submittal at the same time by December 31, 2017. The RI/FS schedule and Table of Contents is intended to ensure a comprehensive document for completion as one final complete RI/FS.
- **G6: Gantt Chart for Revised RI/FS Schedule:** EPA has reviewed the Gantt chart illustrating the conceptual schedule for the completion of various components of the RI/FS Report (Attachment A). And provides the following additional comments below.
  - **General RI/FS Schedule:** EPA appreciates the detailed breakdown schedules, but understands that these feed into one overall schedule that ARC should also provide, as suggested in ARC's August 25, 2015 letter.
  - **Schedule 2: RI Reporting Schedule:** As EPA recommends in comment G1, the timely completion of RI field investigations during 2015 and 2016 will ensure the RI/FS schedule more closely matches the schedule in EPA's January 5, 2015 comment letter. After review of ARC's "Conceptual RI/FS Schedule as of 3/13/2015," EPA finds that the following tasks scheduled for submittal in 2017 should be completed and submitted in 2016:

- Ore Piles and Road Data Summary Submittal
- On- & Off-Property Stream Sediment Data Summary Submittal
- On- & Off-Property Floodplain Data Summary Submittal
- Fish Surveys/Tissue Data Summary Submittal

Two of the documents scheduled for 2017 do not hinder preparation of the RI:

- Leviathan Mine Road Data Summary
- Storm Water/Snowmelt Data Summary

Data sets for mine waste, stream sediment, surface water, and groundwater are likely sufficient to support drafting the RI/FS report (especially in consideration of ongoing efforts to install reference groundwater wells, and continue to collect additional surface water and reference information). In addition, substantial progress was made with collection of On-Property and Reference floodplain soil data during 2015. With additional information from the 2016 field season, sufficient information to prepare a draft RI/FS report by early 2017.

- **Schedule 3: Risk Assessment Schedule:** ARC's proposed schedule shows completion of the human health and ecological risk assessments during 2018. EPA continues to request that the risk assessments be conducted in an iterative manner with screening assessments followed by quantitative assessment of risks so that the risk assessment can be completed to support timely development of remedial action objectives and target a completion date of a full RI/FS that includes the Risks Assessments by January 2018. Please provide a schedule that includes media specific screening assessments as they relate to a January 2018 completion of the RI/FS. Please also include a schedule for the data usability analysis for each media.
- **Schedule 4: RI/FS Schedule:** The timely completion of RI field investigations recommended in comment G1 and RI Reporting recommended in G2 would expedite the schedule for completing the RI Report, Risk Assessments, and Feasibility Study. ARC states: *"According to the 2009 schedule, the discrete sampling and analysis activities that would be used in preparing the RI Report were to be completed more than 15 months prior to the RI Report submittal date."*

EPA requests that the sampling activities recommended in Comment G1 be completed in time to allow for completion of the first Draft RI Report by the end of calendar year 2016, with the Risk Assessments and Feasibility Study Report completed in 2017. And a final RI/FS by January 2018.

EPA believes that the necessary Section 106 coordination activities have been completed to support these activities, with the exception of any Floodplain Soil sampling necessary to assess the extent of contamination in East Fork Carson River bed load sediment. The NHPA coordination is documented in correspondence from the California (October 6, 2014) and Nevada (December 9, 2014) State Historic Preservation Officers.

- **G7: Addressing Data Gaps:** EPA concurs that FS data gap collection activities can occur concurrently with other RI sampling activities,

- **G8: Annotated Table of Contents:** EPA appreciates receipt of the Table of Contents and provides the following additional comments:
  - **TOC G1:** The Annotated outline identified four volumes to the RI/FS report (Remedial Investigation, Human Health Risk Assessment, Ecological Risk Assessment, and Feasibility Study). The outline appears to consider that each of the volumes would be a stand-alone documents. EPA directs ARC to ensure all volumes are prepared in parallel with the other documents, without delaying the development of one complete and final RI/FS with four volumes.
  - **TOC G2:** Please revise “Current and Potential Receptors” in the Risk Assessment Sections to “Current and Future Receptors”.
  - **TOC 1:** Starting with Section 3.1 of Volume 4 (Feasibility Study) and throughout the table of Contents (TOC) overburden is considered to be separate from mine waste. Overburden is specifically identified as mine waste in California Title 27 Chapter 7 (§22480). The outline should be revised to reflect this definition.
  - **TOC 2:** Section 3.1 of Volume 4 (Feasibility Study) describes Site Physical Features. Leviathan and Aspen Creeks and the EFCR are not identified. Please include Leviathan Creek, Aspen Creek, Bryant Creek and East Fork Carson River as features that are investigated for release from the site.
  - **TOC 3:** In Section 3.4 of Volume 4 (Feasibility Study) the annotation text attempts to differentiate overburden from other mine waste as “largely barren soil/rock.” As stated in comment TOC 1, overburden is defined as mine waste under California regulations. Further, there has been no demonstration that Leviathan Mine overburden is barren (presumably this is intended to mean no elevated metals or acid generating potential). Because the overburden is mixed with waste rock at the site, and no information has been presented to support this conclusion, the annotation should be revised to remove the focus on overburden and to retain the focus on source materials.
  - **TOC 4:** Section 3.4.3 of Volume 4 (Feasibility Study) should be deleted because overburden is mine waste.
  - **TOC 5:** The fourth and fifth bullets under Section 3.5 of Volume 4 (Feasibility Study) related to erosion and transport of stream sediment, floodplain soil, chemical precipitates, and the role of Leviathan Basin and Delta landslides in contaminant transport. Please include mine waste in these bullets. Mine waste was eroded from the site from the 1950s through the 1980s and transported downstream. Erosion and sedimentation of mine waste directly in Leviathan and Bryant Creeks and EFCR should also be considered in Section 3.5.

In addition, in Section 3.5 please include a summary to identify the most significant contaminant fate and transport processes to support prioritization of future response actions.

- **TOC 6:** Section 4.3 of Volume 4 (Feasibility Study) for applicable or relevant and appropriate requirements (ARARs) should include Air ARARs in the list of subsections.

- **TOC 7:** Annotations to Sections 7 and 8 of Volume 4 (Feasibility Study) refer to use of a numerical ranking scheme to support alternative evaluations. EPA does not approve of this method. Numerical ranking is subjective and obscures critical elements of the thought process that should be documented as part of the decision process. Please ensure that the decision process is much more transparent through careful documentation of the considerations in the evaluation process.

**Additional Comment 1:** In addition to responding to EPA's January 15 comments, ARC's March 13, 2015 letter correctly describes the need to complete additional consultation with trustees under the Section 106 of the National Historic Preservation Act, and proposes a collaborative data review process be developed between EPA and ARC to allow timely review of RI data and interactive decision making as the RI/FS is implemented. On October 15, 2015 EPA sent an email requesting a Project Area of Potential Effects (APE) description and agenda items by October 23, 2015. EPA is still waiting for this response so that a conference call can be arranged. .

**Additional Comment 2:** In addition to responding to EPA's January 15 comments, ARC provided a response dated August 24, 2015 stating that EPA's January 15, 2015 schedule is impracticable, suggesting that a period of 15 months is required to elapse between RI field sampling and submitting a draft RI/FS report, and suggesting that an amendment to the Program Work Plan be developed that provides a tabular schedule for completion of the RI/FS at Leviathan Mine. As noted in comments above, EPA continues to request that the risk assessments be conducted in an iterative manner with screening assessments followed by quantitative assessment of risks so that the risk assessment can be completed to support timely development of remedial action objectives and target a completion date of a full RI/FS that includes the Risks Assessments by January 2018.

**Additional Comment 3:** EPA welcomes the opportunity to collaborate with ARC to reduce the duration of the RI/FS at Leviathan Mine, and move on to selection of long term response actions. Development of a collaborative data review process will require ARC to clearly provide and document quality assurance/quality control implemented consistently to support the desired decisions. EPA looks forward to developing a collaborative data review and interpretation process to expedite the Leviathan Mine RI/FS. In addition to the annual Data Summary, EPA requests annual submittals and associated updates to the Groundwater, Surface Water, Sediment (stream and floodplain soil), and SSA tasks through our quarterly technical meetings and other periodic meetings as necessary to ensure that there is focus on each topic/media during at least one of the meetings each year to ensure sufficient progress in key areas across the RI/FS.

In closing, EPA refers to our comments from January 15, 2015. In general, ARC should assume that EPA comments and direction remain in effect unless otherwise directed. In no case should ARC assume that any proposal to drop or alter work has been accepted unless specifically approved in a written response from EPA. Paragraph 55 of the 2008 Administrative Order for Remedial Investigation and Feasibility Study provides that "Neither failure of EPA to expressly approve or disapprove of Respondent's submissions within any time period, nor the absence of comments, shall be construed as approval by EPA." Section X of the Administrative Order also provides that modifications must be in writing.

EPA directs ARC to respond to these EPA comments. The attached written Comments from LRWQCB should also be fully considered.

Please provide a written response to address these comments within fourteen (14) days or by November 18<sup>th</sup>.

If you have any questions, please feel free to contact me at (415) 947-4183 or [Deschambault.lynda@epa.gov](mailto:Deschambault.lynda@epa.gov).

Sincerely,

A handwritten signature in cursive script that reads "Lynda Deschambault". The ink is dark and the signature is fluid, with the first name "Lynda" being more prominent than the last name.

Lynda Deschambault  
Remedial Project Manager

Cc by electronic Email:

Douglas Carey, California Regional Water Quality Control Board, Lahontan Region

Lynelle Hartway, Washoe Tribe of Nevada and California

David Friedman, Nevada Department of Environmental Protection

Kenneth Maas, United States Forest Service

Tom Maurer, United States Fish and Wildlife Service

Toby McBride, United States Fish and Wildlife Service

Steve Hampton, California Department of Fish and Wildlife

Marc Lombardi, AMEC